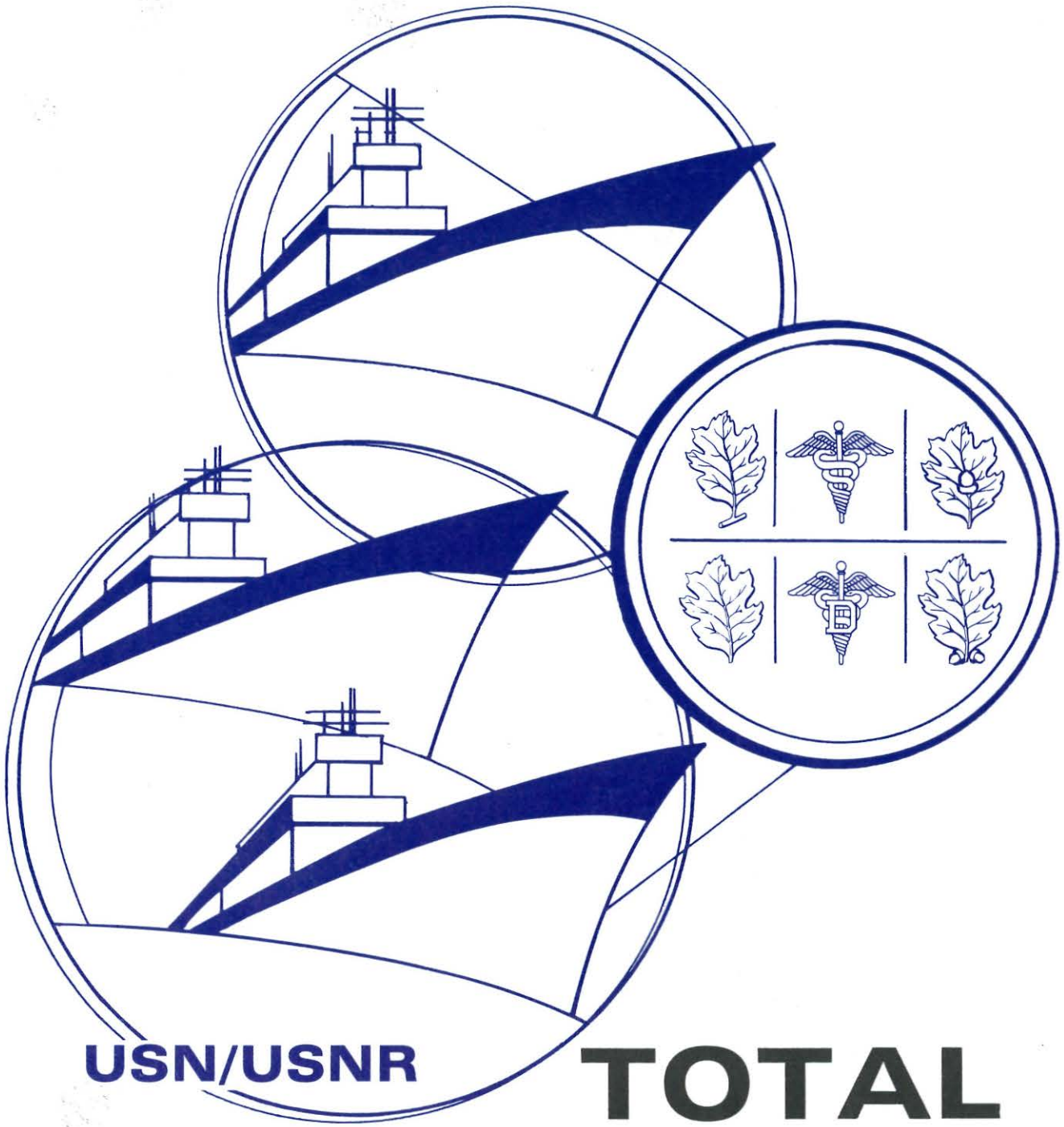
NAVY MEDICINE

September-October 1988



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TOTAL FORCE

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NAVY MEDICINE

Vol. 79, No. 5
September-October 1988

COVER: Art by Sally Hobson, NSHS, Bethesda, MD. HM2 Hobson is also a naval reservist drilling with Unit 2706, Naval Hospital, Bethesda.

An Indispensable Force

The role of the Naval Reserve Medical Department has expanded rapidly in the past few years. In addition to the reliance we have always placed in their traditional function of wartime support, we have come to depend very heavily on their services to provide peacetime health care delivery. Reservists are integrated into the day-to-day operations of our hospitals and clinics and often serve as instructors to active duty providers. Flexibility in meeting reservists' schedules has allowed us to gain 100,000 man-days of support annually. These reservists bring with them a diversity of philosophy and technique which offers a valuable source for innovative thinking to improve the overall performance of Navy medicine.

The mutual support arrangement improves both our active duty care and reserve training. Whenever we can place a reservist alongside an active duty counterpart, we improve the odds significantly that the reservist will be able to be integrated into the force smoothly upon mobilization. In addition, meaningful training improves retention. To provide this realistic, mission-oriented training which enhances mobilization skills, we must get reservists out of the reserve centers and into hands-on clinical and field training. Commanding officers of the newly formed reserve fleet hospitals have done just that, taking their units into special field exercises well in advance of their normally scheduled training to ensure high esprit and the ability to work closely together as a unit.

The Naval Reserve Medical Department is a vital part of our health care system, and all of us, active duty and reserve, must clearly understand its special abilities and limitations. The articles which follow offer examples of the ways in which the men and women of the Naval Reserve are serving Navy medicine today.

CHARLIE GOLF ONE!

VADM James A. Zimble, MC

The Mutual Support Concept

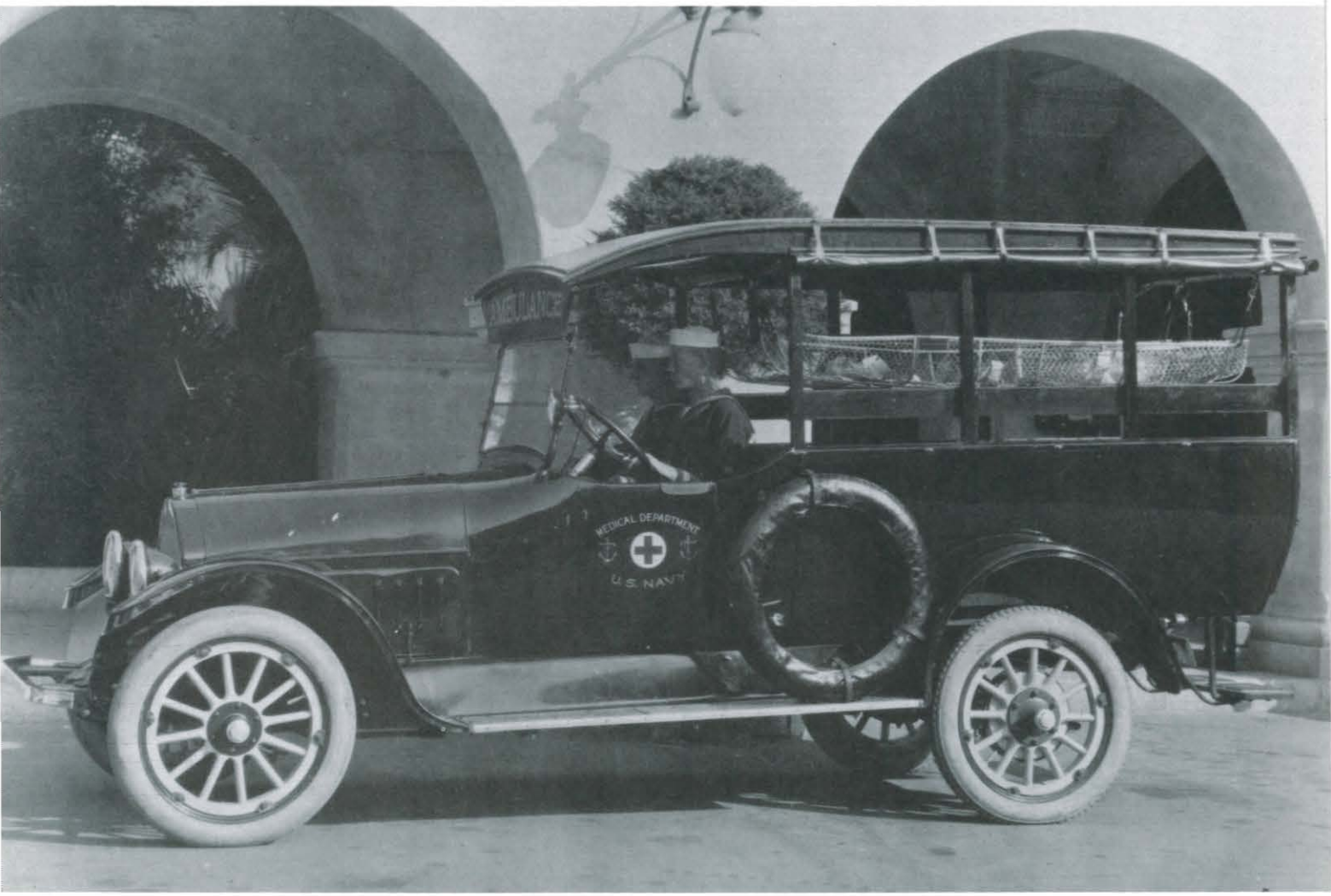
The Naval Reserve has generally been thought of only as a force in readiness—one which, with the proper training, will be available to support the expanded needs of the Navy and Marine Corps during war. The importance and effectiveness of the Naval Reserve Medical Department, however, reaches far beyond this traditional role. Its relationship with the active force is very much a symbiotic one. The "Mutual Support" concept provides us with thousands of additional hours of clinical care in our facilities, without which we would be hard-pressed to provide many of the services currently available.

Equally vital to the high quality of Navy medicine are the diverse backgrounds and skills, and the wealth of knowledge which reserve medical personnel bring into our hospitals and clinics. This "cross-fertilization" provides active duty personnel with an opportunity to learn about the most advanced techniques and procedures being used in medical centers throughout the country, and to test them for possible application within our system. It serves as a basis for innovation, which we must stimulate if we are to keep pace in the rapidly changing world of medicine. Finally, the mutual trust and respect developed when reserve and "regular" work side-by-side often creates relationships lasting much longer than a 2-week ACDUTRA. These friendships ensure the continued exchange of ideas and often have important positive side effects for active duty recruiting and reserve retention.

I have long recognized the ability and importance of the Naval Reserve Medical Department, and assure you that it will continue to have an important role in all planning done by the Naval Medical Command. To achieve this end I have recently told RADM James G. Roberts, Commander, Naval Reserve Force, that I want a reserve flag officer, RADM Paul Kayye, MC, USNR, to be OOR at NAVMEDCOM. Your dedication and willingness to support the active duty component of Navy medicine are respected and appreciated by us all.

RADM H. James T. Sears, MC

A look back: Navy medicine 1919



Department Rounds

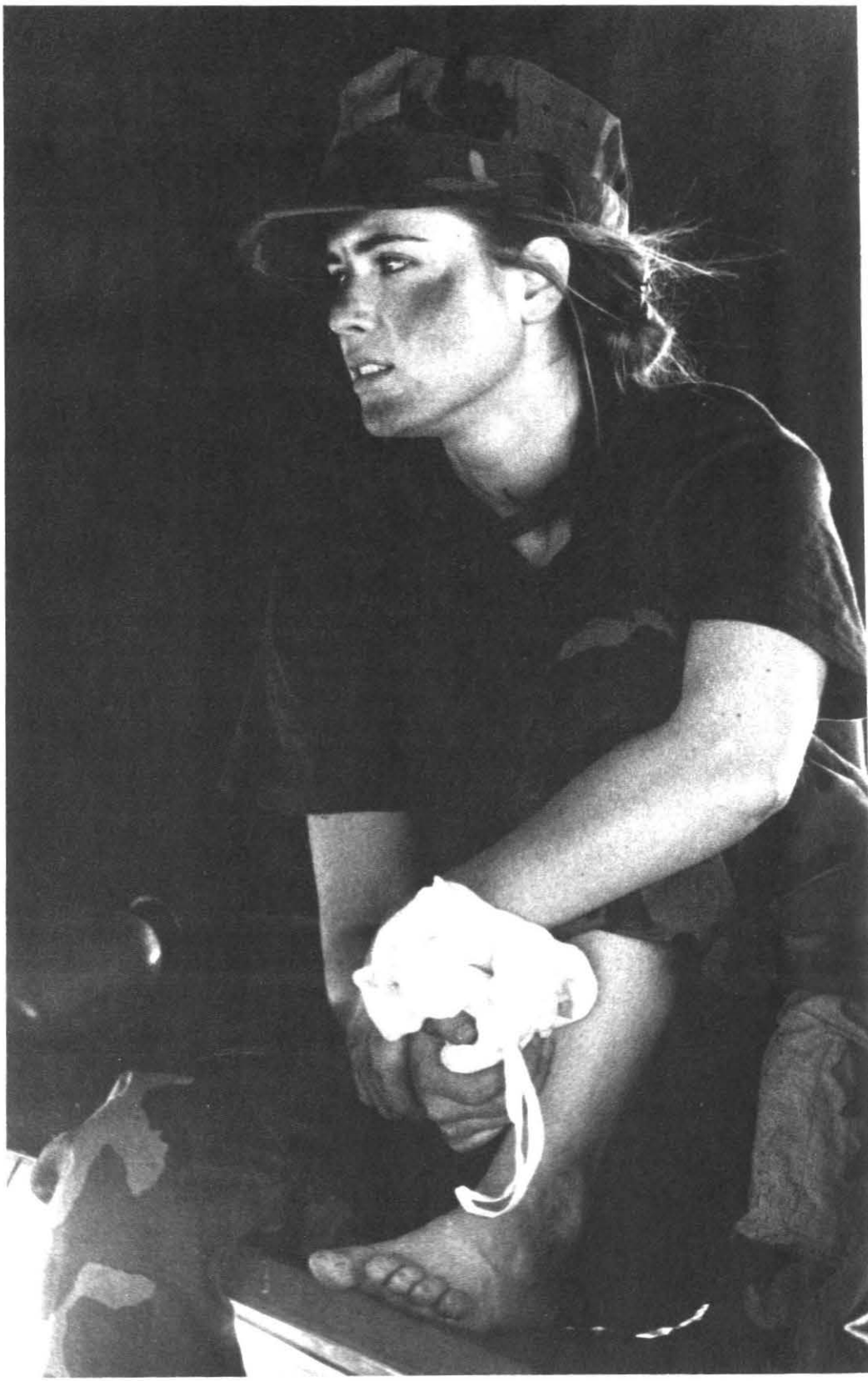
Wounded Warrior

An observer might have guessed the makers of "MASH" were busy filming a modern-day sequel to the popular television series.

Like the series, action for a summer training exercise here focused on treating casualties from a Korean battlefront. Even the Hollywood producers would have been impressed by the close imitation of war—gunfire in the distance, choppers flying overhead, and tactical vehicles grinding through the hills.

However, adding a new dimension to the Army's triannual "Wounded Warrior" exercise was the presence of

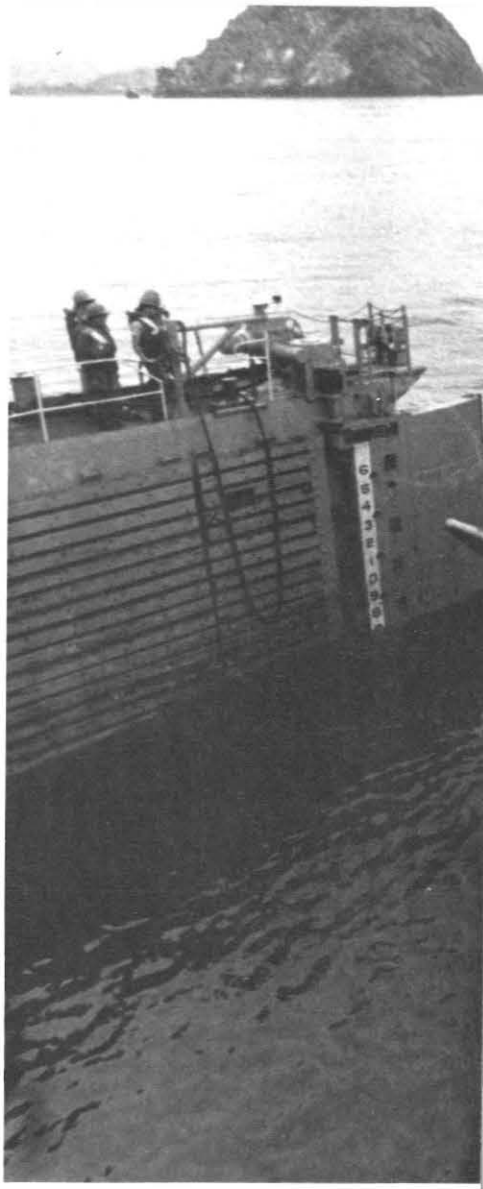
Medics carry a Naval Reserve patient from an air ambulance to an Army field hospital. *Below:* HN Erin Hickox, suffering from a simulated acute sprained ankle, awaits transportation.



216 "extras" flown in from Naval Reserve centers throughout the Pacific Northwest. They were members of one of the Navy's newest additions—a fleet hospital unit.

The Navy will eventually have 20 of the fleet hospital units, 8 active and 12 reserve. The Naval Reserve unit participating in Wounded Warrior, Fleet Hospital Combat Zone Nine, was established in Seattle last October and will be the only unit on the west coast. Members are assigned to 19 detachments located at reserve centers throughout Washington, Oregon, Idaho, Montana, and Alaska.

LCDR James Loch (left) is assisted by Army SSG Frank Pinelagi with dressing a mock critical leg wound at the 47th Combat Support Hospital. *Right:* Army exercise Wounded Warrior patients arrive by landing craft at USS *Mount Vernon* (LSD-39) off Morro Bay, CA. The Navy dock landing ship, which was invited to participate in the exercise while passing on routine operations, provided familiarization training with ship evacuation procedures.



Unit members are charged with being able to set up and operate a 500-bed field hospital using prepackaged equipment strategically positioned worldwide. Unfortunately, that equipment is not available for routine training.

Faced with the lack of hardware, CDR Marjorie W. Slagle, unit training officer, struck a deal with the Army to join in a 2-week field exercise, training shoulder-to-shoulder with Army medical personnel. According to Slagle, structured classes conducted at the beginning of the June exercise alone satisfied more than one-fourth of the requirements in Naval Reserve billet training plans.

Participating in the central California exercise provided the Naval Reserve physicians, nurses, corpsmen, and support personnel with their first opportunity to train together as a unit.

"This exercise provided an excellent orientation without having to put together our own hospital," said LT Kay E. Ortman. During the exercise, she was assigned to the Army's 47th Combat Support Hospital from Fort Lewis, WA.

Aside from the occasional need to define rank or rates, the soldiers and sailors said they found it quite easy to work together.

"The Navy brought a fresh enthusiasm and super 'can do' attitude; they're willing to try anything, including Army chow," said MAJ Neal T. O'Haire of the 175th Medical Brigade.

"Every person I've talked to says the Navy has been phenomenally supportive," added a fellow California National Guardsman, MAJ Michael Spittler.

Naval reservists participating in the 2,300-person Wounded Warrior exercise performed various tasks while individually assigned to several Army units. Besides providing medical care, many took turns pulling galley duty or standing security watches. Others worked with laundry, assisted exercise monitors with tracking patients, and helped make up patient wounds. Most played patients themselves at one time or another.

"Going through the system as a patient allows you to see how everything fits together," said HN Lena Lassen. She said she learned a great deal just by listening.

"Corpsmen and physicians often tend to forget what patients feel," said CAPT Maurice F.P. Masar, the unit's commanding officer. "Try putting a bandage over your eye and being toted around on a litter for a day," he said.

Nonetheless, patient role-playing presented only one phase of learning

for the naval reservists. Many would return to the Navy's assigned barracks from a 24- to 72-hour patient role-play, only to shower and head back into the field for other duties.

"I've worked in communications, field medicine, moulage (making up wounds), and now surgery," said a corpsman while assisting with an operation at the 47th Combat Support Hospital.

"I've learned a lot from working with the surgeons," added another from across the operating table. She was still wearing a cast applied to her arm while serving as a patient earlier in the day.

Some of the Navy doctors and nurses used to working in city hospitals said they found their assignments to the Vancouver, WA-based 313th Mobile Army Surgical Hospital (MASH) to be extremely beneficial.

"You have to coordinate how much blood you have," observed ENS Mary F. Chestnut. "You can't just run to another hospital in 10 minutes for more blood. I'm used to having everything immediately available, so being in a remote situation has been really challenging," she said.

"I've learned a great deal about how patients are triaged in the field," added LCDR Cynthia A. Rostock. "Setting the priorities has been a real eye-opener after working in a hospital setting for the last few years."

Unlike hospital procedure, treatment for more serious patients in the field may be delayed in order to treat quickly less serious injuries and return the soldiers to battle.

There were times when the medical personnel participating in Wounded Warrior didn't need to pretend. They were also called on to treat real injuries and afflictions suffered by participants in a concurrent Army exercise involving some 20,000 soldiers in war games.

Without a doubt, the naval reservists who participated in Wounded Warrior returned home with a much better understanding of what is required to set up and operate their own field hospital, even if it's just for an exercise. In fact, unit administrators felt the training was so valuable that they are already working on plans to take part in another Army exercise, possibly next year in Korea.

Many of the reservists admitted that whether or not they work with the Army again, they'll definitely tune in those old reruns of "MASH" with a newfound appreciation for what the television series portrays. □

—Story and photos by JO1 Lance Johnson, Naval Reserve Readiness Command Region 22, Seattle, WA.

Navy Nurses in the Selected Reserve

CDR Margaret Foote Balacki, NC, USNR
LCDR-selectee Suzanne Wingate, NC, USNR

Dedication, commitment, professionalism—these are the characteristics of those women and men who have served as Nurse Corps officers in the Selected Naval Reserve (SELRES) since 1939. Today, reserve Nurse Corps officers provide expertise and leadership in a wide variety of functions, not only on drill weekends but on 2-week periods of active duty for training (ACDUTRA) or on long temporary active duty (TEMAC) assignments.

The number of Nurse Corps officers in the Naval Reserve has grown in the past 10 years from 187 to 1,400. Yet, this increased number represents only two-thirds of the current authorized strength and only one-third of the requirement for FY92. Consequently, without compromising standards for accessions, innovative recruitment and retention incentives are being developed to assist in attracting and retaining qualified professional nurses.

The chain of command for all medical personnel in the Naval Reserve falls directly under the Commander, Naval Reserve Force. The active duty Nurse Corps, however, recognized the pressing need for representation of SELRES Navy nurses in Washington, DC.

LCDR Joan W. Trelease

Last year, a SELRES Nurse Corps officer, CAPT Margaret Armstrong, was recalled to active duty to serve in the newly created position of Assistant to the Director, Navy Nurse Corps, for Reserve Issues. With her impressive experience in the Naval Reserve, CAPT Armstrong serves as the voice for the growing number of Nurse Corps officers. When asked what the most important position a Nurse Corps officer can hold in the Naval Reserve, CAPT Armstrong replied, "Training officer—training for mobilization readiness is the very essence of the Naval Reserve."

While 90 percent of SELRES Medical Department officers work in their assigned billet in civilian practice, a majority of enlisted personnel do not.

Therefore, each month, training is aimed at maintaining individual proficiency with the skills necessary for mobilization. It is an enormous undertaking, and training must be intense, well planned, and goal-directed.

CAPT Armstrong believes that the two most important issues facing reserve Navy nursing today are the recruitment and retention of qualified nurses and the development of professional-level training programs for SELRES Nurse Corps officers which will develop and maintain the capabilities required for mobilization.

Many Naval Reserve units throughout the country have Nurse Corps officers serving as commanding officers, executive officers, administrative officers, and training officers in units which may number 100 or more personnel. Ideally, leadership skills are honed at an early stage of the reservist's career.

Senior Nurse Corps officers find that positions on the staffs of one of the 16 Readiness Commands or one of the six Geographical Medical Commands throughout the country afford them the opportunity to have significant input on training and personnel issues within the Navy Medical Department.

LCDR Joan W. Trelease is the Readiness Command Region One staff nurse. In this capacity she serves as an important liaison between the nurses at each reserve center and the readiness command. LCDR Trelease states that, "Our nurses possess a vast array of experience and knowledge. My position has given me the opportunity to get to know the nurses in my region; thus, I can better represent them when developing policies for the Medical Department."

CDR Elizabeth A. Mottet is the commanding officer of a PRIMUS (Physician Reservists in Medical Universities and Schools) unit in California where she oversees 25 nurses and physicians as they perform a variety of professional training activities. CDR Mottet is excited about nurses now being eligible for PRIMUS affiliation and sees tremendous benefits of the program for reserve nurses especially while they are attending school or if they already work weekends in their civilian work. She states, "In addition to its flexibility, PRIMUS affiliation is a terrific recruiting tool for SELRES members to share with their professional colleagues."

Many SELRES Nurse Corps officers are finding very innovative and exciting avenues for accomplishing their training requirements. Last year, a small group of nurses, led by CAPT Kay Bauer, participated in the NATO exercise "Reforger" in Europe as part of the fleet hospital program. CAPT Bauer noted, "This experience reaffirmed the importance of working together as a team. Although we may be from different countries, different services, or hold different jobs, we all have the same goal of quality patient care."

Four Naval Reserve nurses, LCDR Karla Hanley, LCDR Joanne Fritch, LCDR-selectee Sherry Brown, and LT Susan Steele received training and experience of inestimable value when they performed 6 months TEMAC on the hospital ship USNS *Mercy* (TAH-19) during its training/humanitarian mission to the Philippines last year. Around the world, SELRES Navy nurses, such as these and LCDR Gary Fillers, who is currently TEMAC to

CDR Elizabeth A. Mottet

HM3 Louis Curtis, Jr.

CDR Susan S. Jackson

CAPT Maryanne T. Ibach

Diego Garcia, are supporting fleet and operational missions for the Navy.

Not all nurses put their civilian and military education and experience to work for the Naval Reserve solely through hands-on training. CDR Susan S. Jackson, a SELRES Nurse Corps officer from the Washington, DC, area, developed the medical component of the standard operating procedures for the fleet hospital program on a 6-month TEMAC. After a period of testing it continues to be revised as needed with the assistance of other SELRES Nurse Corps officers. She also performed TEMAC assigments to assist in the development of the Workload Management System for Nursing (WMSN) and recently in the Nursing Service at Naval Hospital, Bethesda. CDR Jackson recently began another TEMAC assignment to work on a manpower structure study for the active duty Nurse Corps. She is developing specifications for each Nurse Corps billet that will assist detailers to better match the person to the billet. CDR Jackson believes this project will eventually have great benefits for the reserve community. Of her varied TEMAC experiences, CDR Jackson states, "All have been so very positive. They've allowed me to show my leadership potential while being creatively involved in making a contribution to Navy medicine."

Standard operating procedures also had to be developed for the hospital ship before it could get underway. Under the guidance of CAPT Richard Hooper, director of surface medicine, 20 SELRES Nurse Corps officers were among those who spent ACDUTRA periods preparing parts of the organizational and operational framework for those who would be participating in the first cruise. As with the fleet hospital program, lessons learned from the hospital ship experience are being addressed on an ongoing basis with the assistance of SELRES Nurse Corps officers.

Meeting this "readiness" challenge was the goal of a project coordinated by CAPT Maryanne T. Ibach as she served as reserve integration program manager for Naval Hospital, Bethesda in 1984-85. She conceptualized, designed, and implemented a program to integrate reservists from 32 reserve units for support of the hospital staff complemented by the development of a training program for hospital corpsmen with supporting materials which has been distributed Navywide.

HM3 Louis Curtis, Jr.

LCDR Mary K. Smith

LCDR Ann C. McDermott

Section 265 of Title 10, U.S. Code, authorizes members of the Selected Reserve to serve for periods of 2-4 years at headquarters commands in positions which support the Naval Reserve. Two Nurse Corps officers serving in "265" billets are LCDR Mary K. Smith and LCDR Ann C. McDermott, both of whom are stationed at the Naval Health Sciences Education and Training Command. While developing lesson topic guides for readiness training centers and refresher training, they have utilized 4,000 man-hours of expertise by having over 40 SELRES Navy nurses serve on periods of ACDUTRA's or extended TEMAC. Says LCDR McDermott, "I'm continually impressed with the level of expertise that our SELRES Nurse Corps officers possess. This project has allowed not only myself, but also the active duty component at this command to

realize how valuable the reserve contribution is to the Navy Medical Department."

An example of the close active duty/reserve interface found throughout the Nurse Corps is a research project currently being conducted at the Naval Medical Data Services Center by CDR Carolyn S. Warren, NC, the principal investigator and project officer. Tasked with the ambulatory care project component of the WMSN, CDR Warren has been able to accomplish timely data collection at multiple active duty sites with the help of drilling Nurse Corps reservists.

Since 1986 over 70 SELRES Nurse Corps officers have served on the project in various capacities and several have been with the study from the beginning. CDR Warren noted that, "The assistance of the reserve nursing community has allowed this project to progress in a timely manner so that naval medical treatment facilities can meet the standards of the Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) in addition to being ready for the implementation of joint service manpower staffing standards."

Another interesting research project is being coordinated by LT Mary E. O'Brien, a reservist with unit NHBETH 2906, who is director of nursing research at Catholic University of America in her civilian job. She and two active duty nurses are coinvestigators of a nursing research project at Naval Hospital, Bethesda, a project that is studying the quality of life for patients maintained on long-term ventilator care. LT O'Brien sees this as an excellent opportunity to study clinical problems that are relevant to Navy nursing. She notes that, "This experience allows me to learn the practical needs of the clinical setting at the same time that the staff learns the design and procedures of a research study."

HM3 Louis Curtis, Jr

LT Mary E. O'Brien

A most noteworthy example of the "One Navy" concept is the current TEMAC being performed by CDR Mary Jo Majors. She is a SELRES officer who is serving as the Navy Nurse Corps' representative to the commission staff of the Department of Health and Human Services' Commission on the Nursing Shortage. In this role she gathers information, summarizes data, and assists in formulation of recommendations related to military nursing. Regarding this position, CDR Majors notes that, "This experience provides me with an opportunity to represent both reserve and active duty Navy Nurse Corps officers on a project that should have outcomes affecting all of us in our abilities to continue to deliver quality patient care."

HM3 Louis Curtis, Jr.

CDR Mary Jo Majors

RADM Mary F. Hall, director of the Navy Nurse Corps, notes that the corps includes approximately 3,000 active duty and 1,400 reserve nurses for a total of 4,400 nurses. "Considering there are 250 million people in the United States, the Navy Nurse Corps can be considered a very unique organization!" RADM Hall believes the most significant contribution that is made by Selected Reserve Navy nurses is ". . . the constant sustaining transfusion of ideas into the system. It is a way of renewing ourselves and capitalizing on change."

Whether serving with the Fleet Marine Forces, fleet hospital program, hospital ships, naval air programs, hospital units, or headquarters commands, Selected Reserve Nurse Corps officers are having a significant impact on the planning, training, and delivery of health services within both the Naval Reserve and the Navy Medical Department. These professionals are truly "twice the citizen" as they combine civilian careers with their commitment to the Naval Reserve and the Nurse Corps. □

CDR Balacki is commanding officer, Readiness Unit 1, Buffalo, NY. LCDR-selectee Wingate is assistant training officer, NR Naval Medical Clinic, Annapolis, MD.

PH2 L.T. Henderson

Crewmen of USS *Enterprise* hose down burning fuel and exploding ordnance following a 1969 flight deck mishap off the coast of Hawaii.

Fire at Sea

Critical Burn Management Considerations in a Small Deployed Surface Combatant

CAPT Arthur M. Smith, MC, USNR-R
HM1 (SW) Daniel G. Wilson, USNR (TAR)

It is midnight, and an FFG independently steams in darkened waters off the eastern coast of Africa, far from its task group. An engineer on watch suddenly notes the odor of fuel vapor permeating the atmosphere and notifies the engineering watch officer. From the bridge the 1-MC disrupts the quiet of the night, "There is a fuel leak in auxiliary machine room number three—Aweigh the casualty response team!" Minutes later, the boatswain's mate of the watch calls, "Fire, fire, fire—there is a class bravo fire in A.M.R. #3 . . . General Quarters, General Quarters—All hands man your battle stations . . . ."

Soon after all sirens and sonorous clanking of hatch covers, dogging levers and scuttles have ceased, Damage Control Central is notified of the need to move two casualties, suffering from flash burns and smoke inhalation, to the main battle dressing station. Amidst the renewed mechanical timbre of metal upon metal hatch covers and water-tight doors, and the whining of diesel generators, two badly burned crewmembers are borne on litters to the passageway outside sickbay.

Now is the time for the representative of Navy medicine to render their singularly most important contribution to the ship's tactical mission. Is the ship's medical department prepared for its mission in support of these casualties? Can it provide *meaningful* support for these patients until additional help is available?

Varying gradations of medical sophistication exist within fleet operational units. As such, it is entirely logical to define the expected standards of professional burn care which should be available at these differing medical care facilities. Since the morbidity and mortality potential of these injuries can be heavily influenced by the quality of early resuscitative and supportive measures, development of protocols matched to these various

PH3 S.A. Osterbauer

Exploding ordnance and aircraft aboard USS *Enterprise* during a 1969 flight deck fire inflicted many casualties.

levels of medical capability is within reason.

As a prototype, the following protocol (box) was prepared within the confines of a *Perry*-class guided missile frigate medical department. In development of this therapeutic outline, it became apparent that the current Authorized Medical Allowance List (AMAL) of supplies for this class of ship will not fully support complete management of such injuries and will certainly be insufficient beyond the first 3 days following injury.

The concomitant occurrence of major airway obstruction, pulmonary burns, or major blood loss, will further degrade the ability of medical personnel to achieve early physiologic stabilization and a long-term satisfactory result. It must be recognized as well, that not every ship will be in convenient medevac range of more sophisticated medical assistance. As such, the burden must inevitably fall upon the trained independent duty corpsman (IDC) to provide as early and appropriate management as possible for any

potentially salvageable and survivable burn injuries.

Discussion

Recent history has demonstrated that in addition to the ever-present danger of underway conflagration during peacetime steaming operations, burns and smoke inhalation are also an increasing reality in modern naval warfare. Both Exocet missiles and laser guided munitions launched from aircraft, as well as surface-to-surface missile warfare, have increased

Proposed Fleet Protocol

Management of the Burn Patient at Sea

Vessel: FF (*Perry* Class)

Medical Representative: Independent Duty Corpsman

First Priority: Maintenance of airway, control of hemorrhage, *prompt institution of burn resuscitative fluid therapy,* stabilization of fractures, etc.

Burn Resuscitative Therapy:

1. Burning clothing should be extinguished and removed. If burns were caused by a chemical agent, *all* clothing should be removed to also prevent further tissue injury. Since chemical contamination may not always be immediately recognized, this is probably a useful routine for all cases.
2. If significant smoke inhalation occurred, administer oxygen by mask, or nasal cannula if mask is not available. If the patient has inhalation injury that significantly compromises the upper airway, intubation should be carried out. (Although in the Falklands War the British administered STAT prophylactic doses of steroids, studies several years ago demonstrated no beneficial effect of such treatment, and documented that steroid administration increased the risk of infection.)
3. Constricting articles removed (rings, etc.).
4. If chemical agents used, protected medical personnel should wash patient with copious H_2O.
5. If white phosphorus injury dress burns and affected wounds with saline soaked dressings to prevent reignition.
6. Established intravenous pathway in an unburned area with IV cannula, using electrolyte solution.
7. Pain relief, if needed, with "judicious" doses of 3-5 mg *IV* morphine or 10-25 mg IV meperidine.
8. Utilize "Rule of Nines" to assess magnitude of surface area involved:
   A. Patients with greater than first degree burns, involving more than 15 percent of body surface, typically require some resuscitative treatment.
9. ***Fluid Resuscitation Requirements:***
   A. Insert urethral catheter (#16 or 18F 5 cc Foley) and monitor urine output with maintenance goal of 30-50 cc/hour. (Use drainage tube and collecting bag.)
   B. Fluids in first 24 hours postburn:
      1. 2 cc lactated Ringer's solution/kg body weight multiplied by percent burn.
         a. One-half of the fluid requirement *should* be given within the *first 8 hours following injury,* and the remainder over the ensuing 16 hours. (The rate or volume *may* need increase if the BP, pulse, and urinary output are not stabilizing.)
      2. If not allergic, penicillin therapy (preferably IV or IM), has occasionally been recommended for 5 days. (Virtually no one in a hospital setting utilizes prophylactic penicillin at the current time. Nevertheless, the risk of beta hemolytic streptococcal cellulitis in the operational setting, due to a more contaminated environment, may make this appropriate.)
   C. Fluids in *second 24 hours* postburn:
      1. Colloid (5 percent solution of albumin in normal saline).
         a. 15-50 percent burn: 0.3 cc/kg body wt. x percent burn.
         b. 50-70 percent burn: 0.4 cc/kg body wt. x percent burn.

(con.)

c. 70 + percent burn: 0.5 cc/kg body wt. x percent burn.

2. 5 percent dextrose in water: volume necessary to maintain urinary output.

D. *Third postburn day:* Maintain urinary output with predominantly 5 percent dextrose in water (and limited saline).

E. *NOTE:* Patients with significant electrical injury or major associated crush injury may need incremental doses of 12.5 g of mannitol in IV fluids if urine output does not achieve desired levels after increasing the rate and volume of administration.

10. Administer tetanus toxoid.

11. ***Wound Care:*** Only after hemodynamic stability has been accomplished.

A. If required, use IV analgesic only.

B. Body hair shaved from areas of thermal injury and well back from the margins.

C. Burns are cleansed with surgical soap solution and nonviable epidermal remnants are debrided. Bullae are excised. (Conservative debridement utilized in areas of face, hands, feet, and perineum.)

D. If white phosphorus wounds are debrided in a close confined space, all personnel should maintain moist face cloths over nose and mouth. Also, all debrided phosphorus particles should be immersed in water to prevent a conflagration in the treatment area.

E. Patient is placed on a bed on surgically clean sheets with bulky dressings beneath to absorb serous exudate.

F. *Silver Sulfadiazine Cream:* Applied in a layer one-eighth inch thick with a sterile-gloved hand immediately after initial debridement and wound care.

1. Topical cream is cleansed once daily from all burn wounds. Additional debridement carried out here with reapplication of topical cream.

12. Since ileus is virtually universal in all patients with burns of more than 20 percent of the total body surface, nasogastric intubation of such patients should be done in order to prevent emesis and aspiration.

Evaluation Considerations:

1. Must be assured of patent airway.
2. Must be assured of *secure* IV pathway.
3. Nasogastric intubation to establish adequate gastric decompression should be carried out in any burn patient with abdominal distension or other evidence of gastrointestinal dysfunction—prior to evacuation.
4. Bulky dressings may be used during evacuation (occlusive dressings).
5. In a patient burned with white phosphorus, involved areas should be covered by a liberal application of *Silver Sulfadiazine Cream* to prevent both bacterial growth and reignition of retained phosphorus particles. At the very least, any patient burned with white phosphorus should be covered with wet dressings that are kept wet during the evacuation procedures to prevent occurrence of an in-flight fire by reignition of the particles.
6. Patient *must* be accompanied with adequate documentation of all:

A. Administered fluids.

B. Urinary output.

C. Medications administered.

D. Notes regarding any other serialized documentations, such as changing neurologic deficit.

the potential for fire and smoke injury at sea among embarked Navy personnel.

During the Falklands campaign, for example, the increased numbers of personnel suffering injury from fire at sea drove the overall proportion of burn casualties up to 34 percent, compared to less than 2 percent of total casualties during World War II. The spectrum of injury aboard USS *Stark* similarly attests to the potential for burn and smoke injury during naval warfare.

Management procedures for burns and smoke inhalation—a spectrum of injuries with significant manpower and logistic requirements—warrant continuing reappraisal by the cognoscenti of Navy medicine. Updated clinical guidance, in keeping with current progress in the care of burn wounds, must be continuously operative throughout the many Navy medical care echelons. AMAL supply lists must be concomitantly adjusted, within the limits of space availability, on each class of vessel. (They must be adjusted to reflect combat steaming contingencies as well as routine sick-call requirements.) Similarly, clinical guidelines and professional standards must accommodate to the average experience level of health care providers stationed aboard these vessels.

The logistic and training requirements mandate dynamic program direction in order to optimize therapeutic results within the many diverse settings of operational activity. Considering the great potential for occurrence of burn and smoke injury in deployed ships, this form of approach is an essential requirement for quality health care delivery in the Navy's operational forces. □

CAPT Smith, who is a clinical professor of surgery at the Uniformed Services University of the Health Sciences, is a Navy reservist attached to Navy Reserve Unit: USUHS NHB 106, Bethesda, MD 20814. He is also professor of surgery (urology) at the Medical College of Georgia, Augusta, GA. HM1 Wilson is medical department representative, USS *Samuel Eliot Morison* (FFG-13).

The Naval Reserve Medical Department

RADM James G. Roberts, MC, USNR

From NATO exercise "Northern Wedding" to support of the USNS *Mercy,* Naval Reserve Medical Department personnel have supplied manpower and expertise not available from other sources. This direct fleet support is a vital part of the Naval Reserve's mission: to prepare for mobilization and attain combat readiness. A significant part of attaining readiness is accomplished through "hands-on" experience. Sustaining the ability to provide this training depends on maintaining the exceptionally cooperative relationship that exists between the reserve and active duty medical departments.

Naval Reserve medical assets include enlisted hospital corpsmen and dental technicians, along with Medical, Dental, Nurse, Medical Service Corps officers and physician's assistants. They may deploy to fleet hospitals, CONUS medical and dental treatment facilities, Seabee support units, Fleet Marine Force units, aviation squadron support units, and ships.

Training and Pay

Most naval reservists are assigned to structured reserve units and participate in pre-scheduled monthly training periods, termed "drill weekend." During drill weekends, participating reservists perform four, 4-hour drills. Of course, reservists are compensated for drilling and their base pay is commensurate with that of their active duty counterparts having the same time in service. For each drill performed, reservists receive 1 day's pay. In addition to monthly drill weekends, reservists generally perform at least 12 days of active duty for training (ACDUTRA) each year for which they receive both pay and allowances.

Monthly drills by medical reservists are conducted at various sites to include Navy reserve and readiness centers where members participate in didactic medical training, take part in disaster drills, and complete physical examinations on other reservists.

Many medical community reservists actually complete their monthly drill requirements at Navy medical and dental treatment facilities where they provide contributory support to their active duty counterparts. Even so, weekend drilling does not always follow the same routine, and reservists often find themselves participating in a Marine Corps or Seabee field exercise or enrolled in ACLS, BLS, EMT, or other appropriate training programs offered by local civilian medical facilities.

Additionally, the reserve medical community currently enjoys the opportunity to participate in innovative, flexible drilling programs such as Physician Reservists in Medical Universities and Schools (PRIMUS), Medical Individual Mobilization Augmentee (MEDIMA), Flexible Drilling Program (REFLEX), and soon, Navy Expanded Drill Opportunities Clinical Program (NEDOC).

These programs allow medical community reservists to receive drill credit and pay for participation in training activities outside a Navy facility, such as for performing clinical services at other federal medical facilities, participating in Continuing Medical Education courses, professional update training, and in some cases, attendance at Ground Rounds in a civilian teaching facility.

Naval Reserve Medical Programs

When at full strength, the Naval Reserve Medical Department will be comparable in size to the entire Naval Air Reserve Force. To manage

Reservist on Duty

CAPT Ted Borgman

As a 7-year-old child, Ted Borgman watched heroes of World War II return to Washington, DC, for welcome home ceremonies at the Pentagon. He has never forgotten them and has never lost sight of serving his country.

As the son of an Air Force reserve officer who was stationed at the Pentagon and retired as a colonel after the war, Borgman grew up knowing about military life. Dr. Theodore Borgman III is now a busy internist and a captain in the Naval Reserve who hasn't missed a monthly drill in 23 years. "I had a very positive experience in the Navy on active duty," he says.

CAPT Borgman now heads one of two Naval Reserve fleet hospitals in a new reserve mission and finds the task of building a medical team exciting. "As members of Fleet Hospital 21, we have the perfect opportunity to give service to our country," Borgman says.

As commanding officer of Fleet Hospital 21, Borgman's goal is for 600 medical reservists to work together as efficiently as Naval Air Reserve Squadrons do on flight missions. "As a fleet hospital, we have our own major command and functions—not just an add-on to something someone else is doing—and we're making it work."

"If we're recalled, we know what our mission is," says Borgman. "We're getting ready to respond, and expect to be out on the firing line. We completed our fleet hospital training course last summer and by June 1989, our gear will be prepositioned in the Pacific. At this point we have a mission we can relate to, train and perform well for. In fact, we could probably run about 200 beds now."

Fleet Hospital 21 was established in February 1987 when 14 Naval Reserve units were renamed to be part of the new command. In 1 year the hospital has increased from 400 to 600 people and is still growing. "There's less turnover—we're not losing people," Borgman says. "We're recruiting a lot of high tech people, and the PRIMUS (Physician Reservists in Medical Universities and Schools) program is catching on, attracting surgical and other professionals we need. For example, on our team we have two medical deans and an associate dean of a nursing school. Every officer on staff has a master's degree or Ph.D. The Fleet Hospital 21 chief of surgery is a Bethesda-trained vascular surgeon.

"We started with an amorphous group of people that had no sense of mission. In April 1988 we took 500 naval reservists and 400 Army personnel on an exercise in patient handling at Fort Sam Houston in San Antonio, TX. The Army's 114th Evacuation Hospital was our host and provided wonderful support. We issued gear, presented orientations, and practiced patient handling techniques using Army help.

"We got the command together. Now, if they were to go to war, pharmacists, dentists, and our other personnel from Texas, Oklahoma, and New Mexico detachments know each other. Morale is high. When we walked out into a field area last month, everyone was smiling. Physicians, nurses, corpsmen, and others stood to attention when the master chief called a group together, proud of who they were and of being a part of a real mission," he said. "They see reserve service as no longer being just a warehouse of assets for some potential disaster that may never come."

Among Fleet Hospital 21 staff requirements are 222 billets for nonmedical personnel. Many of them participated in the April training sessions. "Seabees built our 22 GP tents, military police served as our master of arms, and food service people prepared 1,500 hot meals on a drill weekend. Our people are beginning to think as a single command and are taking initiative to develop capabilities within the units. Serving the Medical Corps, backfilling hospitals, and serving the Seabees have long been important. But now, the possibility of recall is not just a scenario that probably will never happen."

In civilian life, Theodore J. Borgman, M.D., F.A.C.P., is clinical associate professor of medicine at Tulane Medical Center and practices as an internist on the staffs of Southern Baptist Hospital and Touro Infirmary in New Orleans. He trained at Johns Hopkins and Emory University.

—By Pat Antenucci

Selected Reserve medical personnel, the Director, Naval Reserve (OP-095) and the Commander, Naval Reserve Force in New Orleans, have organized the medical personnel assets into five distinct programs administered by active duty Medical Department program managers. Each of the five programs has an active duty sponsor, such as the Surgeon General, Commandant of the Marine Corps, and the Commander, Naval Construction Force. The sponsors' primary responsibility is to determine training requirements necessary for each reserve billet based on the contingency needs as determined by the mobilization plan.

Program managers are assigned to the headquarters command in New Orleans, i.e., Commander, Naval Air Reserve Force and Commander, Naval Surface Reserve Force. They monitor reserve billet assignments made by subordinate reserve commands and ensure that the best person is in each billet, matching NOBC's and NEC's as required. Additionally, the program managers monitor training and individual mobilization readiness using the Reserve Billet Training Plan (RBTP) as standardized by the program sponsor. The five programs to which reserve medical personnel are assigned are: aviation medical, construction battalion, Fleet Marine Force (FMF), surface medical, and fleet hospitals.

Aviation Medical Programs (Program 5)

The Director, Air Medical Programs reports to Commander, Naval Air Reserve Force for all medical matters affecting the performance and efficiency of Naval Air Reserve commands and units. Primarily responsible for mobilization training of flight medical personnel.

Program 5 also ensures that enough flight surgeons and technicians are available to support Naval Air Reserve Force operations. Additional missions are supporting active duty fleet operations and the Naval Medical Command, as well as supporting the 4th Marine Aircraft Wing (MAW). The MAW surgeon is a Selected Reserve captain who drills at the 4th MAW headquarters in New Orleans.

Reserve Naval Construction Force (Program 7)

The Reserve Naval Construction Force (RNCF) is an Echelon IV command encompassing about 17,000 personnel. Among them are medical and dental personnel who provide the Seabees with health and safety services. The RNCF has one brigade, 8 regiments, 17 battalions, 4 support units, and 7 construction battalion hospital units that build and maintain the fleet hospitals.

The RNCF headquarters staff is located in Lenexa, KS, and subordinate units blanket the country. Every Seabee battalion has 739 enlisted and 24 officer billets, including a 90-man rapidly deployable air detachment with two hospital corpsmen assigned. Composition of RNCF battalions are identical to active duty construction battalions. The RNCF has the potential to deploy multiple detachments to any location or climate in the world.

Fleet Marine Force (Program 9)

The 4th Marine Division has three infantry regiments, one artillery regiment, a Force Service Support Group (FSSG), seven separate battalions, and four separate companies. Units train at 165 sites in 46 states, the District of Columbia, and Puerto Rico. 4th Marine Division (MARDIV) medical coverage is the responsibility of the division surgeon, a Selected Reserve Medical Corps captain who drills at the MARDIV headquarters in New Orleans.

Surface Medical Programs (Program 32)

Program 32 manages about 300 units, each trained to provide health care based on their mobilization assignments to CONUS-based medical and dental treatment facilities. Program 32 encompasses a wide variety of units having somewhat different missions and training requirements.

Hospital and clinic units require Selected Reservists to be capable of performing emergency, outpatient, and inpatient health care. Environmental and preventive medicine unit personnel must be able to identify, locate, define, and solve Navy environmental, occupational, preventive medicine, and public health problems in a variety of operational scenarios. National Defense Medical System (NDMS) coordinating units are trained to provide fully qualified teams to control the flow of military patients from a predetermined point of debarkation to CONUS military and civilian hospitals.

Additionally, Program 32 manages dental clinic units and medical headquarters units such as those that augment the staffs of the Director, Naval Medicine, Naval Medical Command, the geographic commands, and the Naval Medical Materiel Support Command.

Fleet Hospital Program (Program 46)

The Fleet Hospital Program (active and reserve) is sponsored by the Surgeon General. Plans call for the establishment of 23 fleet hospitals, 8 of which will be staffed by active duty medical personnel and 15 staffed by selected naval reservists. Of the 16 currently functional fleet hospitals, 7 are assigned to the Selected Naval Reserve. The Fleet Hospital Program provides large unit training opportunities not consistently available to reservists in the past.

Even though individual staff members of a single reserve fleet hospital live over widespread areas of the country, fleet hospital staffs have gathered together for weekend field training exercises, 2-week ACDUTRA at the Fleet Hospital Training Activity at Camp Pendleton, and participated as a unit in special 14-day NATO exercises at OUTCONUS field locations. These large unit training evolutions quickly build an esprit de

Reservist on Duty

CAPT Morris Kerstein

Morris Kerstein performs high-risk vascular surgery and teaches surgeons every week, but takes delight in working as a Naval Reserve captain.

"It's fun. The people are fun. It's different from what I do every day," says Kerstein. "I can have an input into the delivery of health care, the quality of health care, and the quality of training."

He's not kidding. A glimmer of Kerstein's interest in quality of care shone through the afternoon he came to interview for this article at Commander, Naval Reserve Force Headquarters. When a Navy officer came in and asked if he'd reviewed a report, Kerstein looked at it, hesitated, and said, "An after-action report says not only what happened, but lessons learned . . . ."

Chief of vascular surgery and associate dean at Tulane Medical Center, Kerstein performs 8-10 high-risk major vascular surgeries a week on patients referred by other surgeons at Tulane University Hospital and Charity Hospital in New Orleans; he sees about 80 patients in his offices. Editor of two journals and author of numerous published articles, Kerstein teaches medicine year-round to two or three third-year medical students who follow him around, rotating with other students every 2 or 3 weeks. He works more than 120 hours a week, sleeping 3-4 hours a night, yet still finds time for the Navy.

As a reservist, Kerstein currently is division surgeon for the 4th Marine Division, responsible for the health and education of 2,000 Marine medical personnel. He also serves as a board-certified surgeon to whom the Navy sends some of its surgeons for specialized training. As liaison officer for the Uniformed Services University of the Health Sciences and as a medical school liaison officer, he interviews students who apply for Navy medical school scholarships.

A 23-year veteran of the Naval Reserve, CAPT Kerstein knows what real combat is. In 1965 he served in Vietnam with a surgical team, and in 1983 Kerstein was the only medical reservist recalled to Beirut, where he shared barracks quarters with Dr. John Hudson, who later was killed during bombing of those barracks 2½ weeks after Kerstein returned to the States.

"For over a month we operated every day," he recalls. "Because of so many missiles in the air, we chose to operate in a basement ashore rather than evacuating patients by helicopter to the ship. We had one operating table—our first was a ping pong table—and four to six beds."

Yes, he agrees, it was a modern day "M.A.S.H." experience in the Middle East. And he draws from such background for teaching as well as for his Naval Reserve responsibilities.

"The principle of injury is the same in Vietnam, Beirut, or Charity Hospital," he says. "The principles of management are the same. The hardest part of surgery is not necessarily technical skills, but judgment and decision-making."

Associate dean of academic affairs and director of postgraduate medical education at Tulane, Kerstein oversees graduate and postgraduate education for 500 residents and fellows, managing a budget of $10 million. Among his many honors, Kerstein is pleased to have been tapped by peers for induction into the 150-member Medical Surgical Association this May.

"My satisfaction as a surgeon, both in the Navy and in civilian life, is threefold," says Kerstein, "teaching or seeing student success, surgical intervention on a patient, and contributions to science or research.

"If a medical career has a drawback," says Kerstein, "it is the single greatest competitor to a family." He speaks with pleasure of his wife, also a doctor, and his 5-year-old son, Lars. Then, again, a glimmer of the doctor's other loves shine through his conversation.

"When I'm out of town, I make three phone calls back to New Orleans each day," he says, "to the Tulane Department of Surgery, to the Dean's Office at Tulane Medical School, and to the 4th Marine Division."

Sorry about that, family.

—By Pat Antenucci

corps among the unit that solidifies high morale.

Summary

The Naval Reserve Medical Department has always responded to and met past crises. An ever-changing international political environment presents even greater challenges. The medical reserve program is significantly increasing in size, scope, and performance levels to meet these challenges and to maintain mobilization readiness.

To further ensure that the reserve medical community meets the challenges of today's and tomorrow's environment, reserve medical program leadership has been realigned, more sophisticated recruiting and retention incentive programs have been developed, and medical training is becoming more mission-oriented and professionally substantial. As the Naval Reserve Medical Department grows and trains, it stands ready to serve proudly alongside our active duty colleagues.

RADM James G. Roberts is Force Medical Officer for the Commander, Naval Reserve Force, New Orleans, LA. He is a Selected Reservist who also serves as the Deputy Director, Naval Medicine for Reserve Affairs (OP-093R) on the Surgeon General's Pentagon staff. RADM Roberts was assisted in writing this article by the following active duty and Selected Reservists assigned throughout the country: CAPT Arnold Pock, MSC, USNR, HM2 Sally Hobson, USNR, LT William Fox, LT Scott McClung, MSC, CDR Betty Ristow, NC, USNR, CAPT Harold J. Rothenberg, MC, USNR, CAPT Vernon Moore, MC, USNR, CAPT Mario D. Oriatti, MC, USNR, and CAPT K.A. Rethmeier, MSC, USNR. □

Reservist on Duty

DT2 Ken Keene

DT2 Ken Keene, a native of Tampa, FL, brings a unique and varied background to the Naval Reserve. His active duty Navy service included recruit training at Great Lakes followed by duty on board USS *Annapolis* (AGMR-1).

After release from active duty his college days were spent at the University of South Florida followed by a teaching career in the Hillsborough County (Tampa) Public School System.

As a Selected Reservist, most of Petty Officer Keene's assignments have been with the FMF, participating in ACDUTRA's at Mountain Warfare Training, Bridgeport, CA; Cold Weather Training, Camp Ripley, MN; RESPHIBLEX, Camp Lejeune, NC; and at MCAS Kaneohe, HI, with the 24th Dental Company.

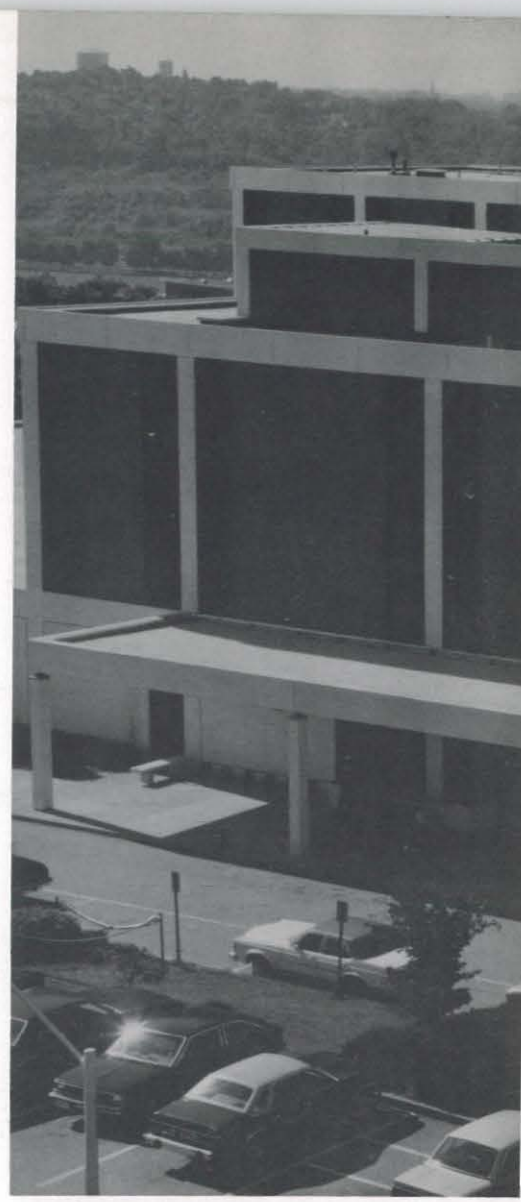
Because he wished to increase his skills and knowledge in the medical field, Keene completed training as an operating room technician. His most recent undertaking, "a once in a lifetime cruise" as he describes it, was his 5-month tour on USNS *Mercy* (T-AH-19). He left his job as an operating room technician at Carolwood Community Hospital in Tampa to sail on the humanitarian training mission to the Philippines and other Western Pacific island nations.

Petty Officer Keene was among those on the first trip of USNS *Sioux* (TF-171), the oceangoing tug that accompanied *Mercy* and provided ship-to-shore shuttle for the personnel and equipment at the ports where the harbor was too shallow for *Mercy* to enter. He volunteered as petty officer in charge of the dental tiger team, which established the field medical sites.

Keene and the other members of the dental teams on *Mercy* provided treatment for more than 17,000 patients and performed 185,200 procedures, including almost 42,000 extractions. He functioned primarily as a chairside assistant during the seven field evolutions and as a scrub and circulating assistant during main operating room oral surgery cases.

DT2 Keene is a classic example of the "twice a citizen" naval reservist who contributes greatly to the success of the Naval Reserve mission while at the same time making significant contributions to his community.

The "One-Call" Outpatient Appointment System



Naval Hospital, Groton, CT

Does the mere mention of your outpatient Central Appointments system send a cold shiver racing through your patient population? Then you may be interested in learning just how one naval hospital transformed its Central Appointments system from an exercise in patient frustration to one of the most popular and, user-friendly systems in its area.

The Naval Hospital in Groton, CT, averages over 15,000 outpatient visits per month. Before January 1987 a patient could only call the Central Appointments Desk and schedule clinic appointments on certain designated days. With that system it was not uncommon for patients to spend the better part of their Wednesday mornings trying to schedule an eye clinic appointment only to discover that when they finally made it past the seemingly constant busy signal and reached the appointment clerk, they were told, "Sorry, there are no more appointments available, please try again next Wednesday." Or, if the patient was able to schedule an appointment, it might not be for another 3 weeks. By that time the patient would more than likely "forget" about the appointment and have to start the frustrating telephone cycle all over again.

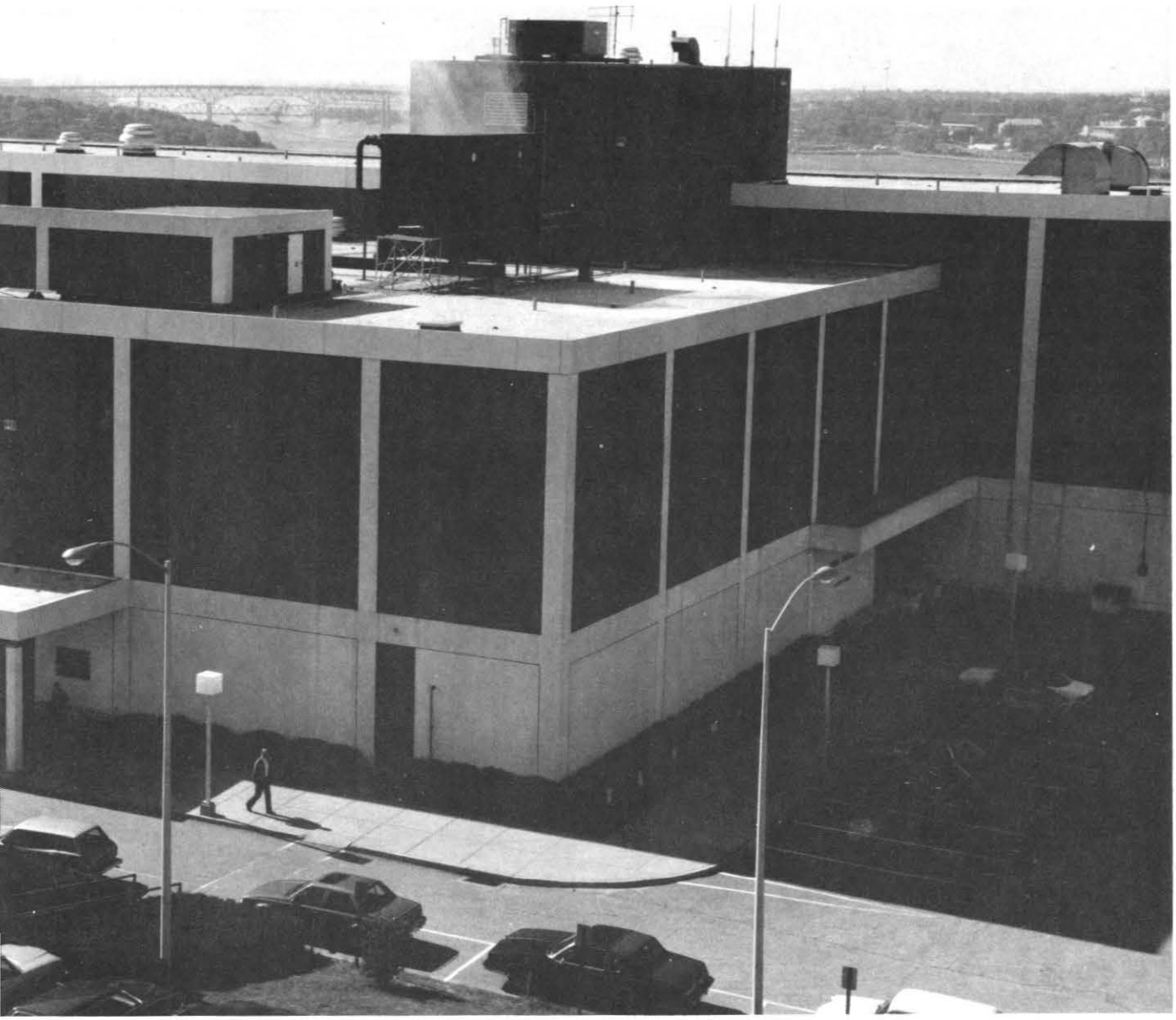
It was problems such as these that caused a unanimous outcry from patients and staff personnel alike to "do something" about the Central Appointments nightmare. A few brainstorming sessions and several point papers later a solution was in hand. The staff at Naval Hospital, Groton, in conjunction with the local area commander, developed a plan that, after completion, seemed so simple to those involved that the phrase "let's work smarter not just harder" took on a new meaning.

The plan was designed around a simple premise: Lessen patient frustration by improving access to care. In short, the patient's convenience comes first. With this concept in mind, the "one-call" Central Appointments system was developed. This system focused on three areas: the patient's initial call, the creation of a waiting list, and the appointment reminder service.

Since much of the patient frustration with the original Central Appointments system was associated with the specific designated clinic scheduling days, that portion of the system was the first to go. The "one-call" system allows patients to reach the Central Appointments clerks anytime during normal working hours, so the mad frenzy caused by a patient being forced to call for a specific appointment on a certain day was eliminated along with the old system's constant busy signals. Our new toll-free 1-800 number should also prove to be extremely popular with our patients living outside the immediate area.

If a particular clinic appointment was unavailable at the time the patient called, that patient's name was recorded on a waiting list and was called back when an appointment became available. Again, the patient's convenience was our primary concern. By placing that patient's name on a waiting list and then recalling the patient when an appointment was available, we eliminated the need and bother to the patient to make several phone calls to schedule a single appointment.

The length of time a patient remained on a waiting list before securing an appointment varied with each clinic. Our longest waiting list is for



OB/GYN routine PAP smears and annual examinations. A patient who wants an appointment in that clinic is put on a waiting list and can expect to be called back within 3 weeks with a scheduled appointment. Waiting lists maintained by the Central Appointments clerks are managed on a first-called, first-served basis. The only exception is with the active duty patient whose name is flagged and who is given priority for all appointments.

The unique feature of the one-call appointment system is the reminder-call service. One or 2 days before a scheduled appointment, a staff member from the hospital will contact the patient during normal working hours to confirm the time and date of his/her appointment. If a patient is unable to be contacted during the day, an active duty member from Senior Area Line Commander Staff, Submarine Group TWO, who comes to the outpatient administration department between 1800 and 2000, makes evening reminder calls.

Since this system has been started, the number of no-shows in the well-baby clinic, for example, has been reduced from a 25 percent appointment default rate to that of a 0 percent default rate for those patients receiving reminder calls. The after-hours portion of this reminder service is also used to contact those patients on waiting lists who are unable to be reached by the Central Appointments clerks during normal working hours. These patients are asked to contact the Central Appointments Office the next morning for information about their appointments. This reminder call service is extremely popular with patients and staff members alike.

The one-call system has significantly decreased the number of patient complaints about the appointment system, while simultaneously improving the number of patients having access to the system, and also has increased productivity. The original goal of the new Central Appointments system was met. It is now unquestionably more convenient and less stressful for the patient to schedule a clinic appointment. The combined effort of the medical in cooperation with line activities has made the most out of a bad situation and improved patient satisfaction. □

—Naval Hospital, Groton, CT.

Suicide in the Naval Service

Part I: Demographics

CDR Douglas E. Dennett, MC, USNR
CAPT Noel S. Howard, MC, USN

Studies of suicide among active duty military personnel have been periodically published for each of the uniformed services.(*1-8*) These reports usually include annual rates of suicide for age, rank, sex, and additional social and demographic data such as rate, length of service, marital status, and characteristics of the suicide. Datel et al.(*1-4*) have reported the use of line of duty (LOD) investigations for analysis of suicidal behavior in the Army. Previous Navy reports have used Bureau of Medicine and Surgery (Naval Medical Command) files labeled as "death by own hand" and hospitalization records maintained at the Navy Medical Neuropsychiatric Unit, Naval Health Research Center, in San Diego, CA.(*9, 10*) We report a pilot study designed to use Navy LOD investigations to collect data on Navy and Marine suicides similar to the work by Datel et al.

A mechanism was established for all LOD investigations received by the Office of the Staff Judge Advocate (OSJA) involving cases of suicide or suspected suicide to be forwarded to the Bureau of Medicine and Surgery for review. The investigations were then studied for content material deemed relevant for epidemiological research. The research sample consisted of the first 100 cases received from OSJA between March 1978 and November 1979. Four cases were excluded: two because the victims were not on active duty at the time of death; one case was determined to be an accidental death and one case of attempted suicide was inadvertently included. The remaining 96 cases of completed suicide (CS) were used for the subsequent study.

Results

Table 1 shows the distribution of our sample by year of death and service group. The sample is not complete for any year group and therefore no rates are reported. There were four Navy officers in this sample and no Marine Corps officers. There were three females, all Navy enlisted. The females accounted for 4.3 percent of the Navy CS group. By comparison, in 1978 4.4 percent of the Navy enlisted force was female. The method of suicide for these females was not dissimi-

TABLE 1
Completed Suicides by Year and Service Group

	Enlisted		Officer
	Navy	*Marine*	*Navy*
1976	1	0	0
1977	12	3	1
1978	49	16	3
1979	7	3	4
Totals	70*	22	8

**Year uncertain in one case*

lar to the males. Two died of gunshot wounds to the head and one as a result of hanging. Table 2 shows the distribution for all other variables extracted from the LOD investigations.

Marital Status. There is a noticeable difference between the Marine group and the Navy group with respect to marital status. It was far more common for a Navy CS to be married. Missing data, however, makes firm conclusions difficult and statistical analysis unreliable in this sample.

Race. The greatest number of CS are Caucasian in both services. The percentage of minority CS is not statistically different from the relative distribution within the services without correction for age.

Command Type and Deployment Status. The differences in command types and deployment status within the Navy can be compared to 1978 manpower data that show 52 percent of sailors were afloat, 39 percent were on U.S. shores, and 9 percent were outside the United States. Suicide while aboard a deployed ship was an uncommon event. Only one sailor was reported as a suicide while at sea. However, eight suicides occurred on board ship while in port or drydock.

Time. The time of suicide during the 24-hour day was nearly an equal distribution for sailors. The marines had a slightly greater frequency between 2000 and 2400 hours.

Location and Duty Status. Most CS occurred at the home or apartment of the victim while in a liberty or leave status. It should also be noted that several marines and sailors died while U/A or AWOL.

Method. By far the most common means of CS was from gunshot wounds to the head, chest, or abdo-

TABLE 2
Characteristics of the Enlisted Suicides

	Marines		*Navy*	
	N=22	Percent	N=70	Percent
Rank				
E1	6	27.3	6	8.6
E2	3	13.6	9	12.9
E3	4	18.2	10	14.3
E4	4	18.2	9	12.9
E5	3	13.6	19	27.0
E6	2	9.0	9	12.9
E7	0	0	6	8.6
E8	0	0	2	2.9
Marital Status				
Single	11	50.0	23	32.9
Married	6	27.3	28	40.0
Separated	0	0	9	12.9
Divorced	2	9.0	4	5.7
Race				
Caucasian	16	72.7	56	80.0
Black	3	13.6	5	7.1
Puerto Rican	2	9.0	0	0
Mexican American	0	0	2	2.9
Filipino	0	0	1	1.4
Command Type				
Ship	0	0	24	34.2
Submarine	0	0	1	1.4
Shore	20	90.1	31	44.3
Air	1	4.5	12	17.1
Deployment Status				
Ashore US	17	77.3	44	62.9
Ashore non-Conus	3	13.6	4	5.7
Afloat	0	0	1	1.4
In port/drydock	0	0	19	27.1
Location of CS				
On board ship	0	0	9	12.9
Barracks	1	4.5	3	4.3
Quarters	0	0	2	2.9
Other—place of work	5	22.7	1	1.4
Private residence	9	43.0	33	47.1
Motel	1	4.5	4	5.7
Car/street	2	9.0	8	11.4
Jail	2	9.0	1	1.4
Hospital	0	0	2	2.9
Public building	0	0	1	1.4
Woods/field	1	4.5	6	8.6
Duty Status				
Duty	3	13.6	8	11.4
Liberty—on board	1	4.5	4	5.7
Authorized liberty	8	36.4	33	47.1
Authorized leave	4	18.2	6	8.6
U/A	3	13.6	11	15.7
Deserter	1	4.5	1	1.4
Sick list	0	0	2	2.9
Special liberty	1	4.5	1	1.4
NJP restriction	1	4.5	0	0
Separation leave	0	0	1	1.4

(con.)

Method				
GSW	14	63.6	43	61.4
Hanging	5	22.7	10	14.3
Falls	0	0	6	8.6
Poison—inhalation	2	9.0	5	7.1
Poison—ingestion	0	0	3	4.3
Drowning	0	0	1	1.4
Lacerations	0	0	0	0
Mixed	0	0	1	1.4
Burns	1	4.5	0	0
Degree of Isolation				
Special person near	4	18.2	9	12.8
Special person present	2	9.0	6	8.6
Peer/friend near	1	4.5	2	2.9
Peer/friend present	2	9.0	1	1.4
Other near	3	13.6	10	14.3
Other present	1	4.5	1	1.4
Alone	7	31.8	36	51.4
On phone	1	4.5	2	2.9
Communication				
Overt	3	13.6	15	21.4
Implied	2	9.0	14	20.0
Notes	4	18.2	20	28.6
Behavioral change	3	13.6	26	37.1
Visits Within 3 Months to:				
Medical officer	2	9.0	10	14.3
Psychiatrist	2	9.0	6	8.6
Chaplain	0	0	3	4.3
Command	4	18.2	14	20.0
RN/SW	0	0	1	1.4
CAAC/ARS	1	4.5	6	8.6
Any professional	6	27.3	27	38.6
Recent Psychiatric Hospitalization				
Current	0	0	2	2.9
3 months	2	9.0	1	1.4
3 months	1	4.5	3	4.3
Psychiatric Diagnosis				
Personality disorder	1	4.5	4	5.7
Alcoholism	3	13.6	4	5.7
Situational disorder	0	0	1	1.4
Stressors				
With love relationship	8	36.4	24	34.3
Loss of love relationship	1	4.5	7	10.0
Legal	4	18.2	3	4.3
Occupational	1	4.5	9	12.8
Administrative	6	27.3	5	7.1
Health	0	0	3	4.3
Recent Administrative Action				
Administrative separation	3	13.6	2	2.9
Captain's mast	0	0	1	1.4
NJP	2	9.0	0	0
Court-martial	1	4.5	1	1.4

men. The percentage of deaths from gunshot wounds in both services is quite consistent with the method of suicide deaths in the general population.

Isolation. In nearly two-thirds of the Marine cases and one-half of the Navy cases, another individual was near the victim at the time of death. In one-quarter of the cases the other person was a significant other, often the spouse or girlfriend of the victim, and identified by the victim as a source of distress.

Communication. Suicidal ideas are often communicated to others in a variety of ways. Verbal communication may be direct and overt or indirect and only implied. Absence of communication was not usually recorded in the LOD investigation. Since absence of recorded noncommunication is not equivalent to the proof of noncommunication, our study is at best an approximation of the lower limits of communication. In this study we found a relatively low rate of communication among marines, 22.6 percent, compared to sailors, 41.4 percent. Also, behavorial changes were noted more frequently in sailors, 37.7 percent, compared to marines, 13.6 percent. Notes were also left more frequently by sailors, 28 percent, than marines, 18 percent.

Professional Contact. Recent visits to health professionals or other supervisory personnel for consultation, counseling, or advice are other means of communicating distress prior to suicide attempts. Visits to medical officers, psychiatrists, psychologists, chaplains, senior NCO's or OIC's, nurses, social workers, and drug and alcohol counselors were recorded in the LOD investigations for 27 percent of the marines and 38 percent of the Navy enlisted group within 3 months of their suicide. Previous suicide attempts were noted in 5 percent of the marines and 20 percent of the Navy enlisted. Previous psychiatric hospi-

talization (including alcohol rehabilitation) was noted in 14 percent of the marines and 8 percent of the sailors.

Alcohol. Alcohol use was noted whenever the autopsy results included a blood alcohol concentration greater than 0 or when witnesses stated that the victim had been drinking prior to the suicide. One or both of these criteria were met in 23 percent of the marines and 24 percent of the sailors.

Stressors. Problems within a close relationship were the prominent feature in many LOD investigations of CS. Even though more of the Navy victims were married the percentage of problems with "love relationships" was quite similar in both groups, Navy (44 percent) and Marine (40.9 percent). Of note, the Marine sample had a considerably higher rate of legal and administrative problems, while the Navy group had more work-related difficulties.

Profile. A composite (hypothetical) profile of this data suggests that a typical Navy and Marine suicide differ on several dimensions. The composite Marine suicide would be a white, single lance corporal with about 3 years of active duty assigned to a shore facility. The self-destructive act would be a gunshot wound inflicted at the individuals home or apartment while on liberty or leave. There would likely be another person nearby or present. Notes are not common, and communication of suicidal intent was minimal. Visits to potential helpers (doctors, chaplains, supervisors) are recorded in less than 30 percent of cases. Only a few marines have been hospitalized for psychiatric reasons. The predominant psychosocial stressor is a troubled relationship with a significant other, plus legal and administrative difficulties.

A composite Navy suicide is a white, married second class petty officer assigned to a shore facility. The suicide is a result of a gunshot wound inflicted on liberty at home. The sailor is more likely to be alone (54 percent) than to have other people around. Notes are more common, and communication of intent and observed changes are also more frequently noted. A sailor is more likely to seek help. Relationship problems are the major source of stress while additional stress comes from the job.

Discussion

The Line of Duty and Misconduct Investigation as put forth and described in chapter VIII of the *Manual of the Judge Advocate General* is a report particularly well suited for epidemiological research. The JAG manual, section 0810, directs the commanding officer or OIC to convene a fact-finding body: "In any case in which death of a member of the naval service occurred other than from natural causes and particularly all apparent suicides." The "Check List for Fact-Finding Bodies" (section 0817) provides an excellent guide, that when followed conscientiously makes the completed LOD investigation a rich resource of social and psychological material.

The quality of the LOD investigations reviewed for this project varied widely. Generally, the information listed in section 0817 was available. Unfortunately, the investigations were not consistently complete and valuable information was missing. Interviews with survivors are a sensitive matter and many fact-finding bodies omit interviews with the surviving relatives because they feel that further inquiry would be disruptive, insensitive, and inappropriate. However, many research studies have reported that interviews with survivors are, in fact, helpful when conducted in an empathetic and nonjudgmental manner. In addition, survivors themselves often suffer emotionally following a suicide. When the survivor is encouraged to discuss the circumstances of the tragedy, his or her sense of isolation, the guilt, and other psychological sequelae are more easily identified and appropriate intervention can follow.

A major task for epidemiologic research is the identification of incidence. The study of suicide incidence is difficult with many variables affecting the identification and collection of data. This study was not designed to examine rates of suicide in the naval service. A separate report will address this issue.

Another aspect of epidemiological research is the study of distribution. In this project distribution of suicide in the Navy has been reported with respect to age, sex, race, rate, marital status, command type, duty status, deployment status, location of event, cause of death, communication, and interpersonal factors.

This data becomes most meaningful when the frequencies of these variables can be directly compared with the corresponding distribution in the overall Navy and Marine populations. When this information is available rates can be calculated and tests of significance used to judge the degree of variance. This procedure was not possible for most of the variables identified in this study. We hope in the future to use this methodology to better identify individuals at risk.

A third aspect of this type of research is the study of factors related to the presence or absence of an event. The LOD investigation is well suited to this task. A thorough investigation includes material describing social and interpersonal conditions, events leading up to the suicide, method, time, and, in some cases, observations relating the apparent psychological state of the victim. This report has examined several variables as listed in the results, and the variation within these categories is testimony to the complexities of suicide.

Two steps related to prevention of suicide are identification and intervention. Identification of persons at risk

requires a combination of sensitivity, objectivity, and awareness of self-destructive impulses. This report examined two factors connected with identification: forms of communication of suicidal intent and visits to people who could initiate intervention.

Communication can take several forms—overt verbal statements, implied verbal statements, and nonverbal actions. In this study some form of communication was noted in about one-third of cases. Visits to potential helpers were also made in about one-third of cases. There was considerable overlap in each of these groups. This study did not attempt to identify characteristics of communicators versus noncommunicators.

In Yessler's study of Army suicides he found that officers communicate more than enlisted, married individuals communicate less than single, and those who made previous suicide attempts communicated more. He also found that quiet, shy, reserved soldiers communicated least; suspicious, anxious, paranoid types communicated more; and immature, stubborn, passive-aggressive types communicated the most. Finally, he found that communicators were more likely to behave in a manner that called attention to themselves, and noncommunicators were less likely to be referred because of behavior and more likely to seek help on their own.(*11-12*) All of these areas have potential for further study.

Another most important variable related to the presence or absence of suicidal behavior is the sum of stressors upon an individual. Stress research shows wide variability in individual responses to stressors. Each person has a unique repertoire of defenses or coping styles. His or her emotional state is then determined by the quantity and quality of stressors and the unique interaction with coping mechanisms.

Despite the potential diversity of life stressors, it is interesting to note that in nearly 50 percent of the suicide cases in this sample, marital or love object problems were judged to be of strong influence. This finding is consistent with the work of Datel et al. in Army suicide cases.

Summary

For this pilot project line of duty investigations were reviewed for 96 cases of suicide in the naval service. Data was extracted and analyzed to present a social and demographic profile of CS in the Navy and Marine Corps. In the opinion of the authors the LOD investigation has been proven a valuable resource for a study of this kind. In future studies additional evaluation of behavorial and mood changes will add to the understanding of suicidal individuals.

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CDR Balacki Heads Readiness Unit One

CDR Margaret Foote Balacki, NC, USNR, assumed command of Naval Reserve Readiness Unit One in Buffalo, NY, during change of command ceremonies 11 Sept 1988. Her appointment marks only the second time a woman has been named commander of a readiness unit composed of line as well as staff corps personnel, and the first time ever a staff corps officer has been selected for such a post. CDR Balacki succeeds CDR Leon A. Schierer, who commanded the readiness unit since its inception early last year.

CDR Balacki has been a member of the Navy Nurse Corps since 1970. She was the 1987 recipient of the prestigious Mary L. Nielubowicz Award for Navy Nursing, recognizing outstanding contributions to the betterment of the Navy Nurse Corps. CDR Balacki most recently served as executive officer of Readiness Unit One and officer in charge of the medical department at the Buffalo Naval and Marine Corps Reserve Center.

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Our nation was founded on the principle that the individual has infinite dignity and worth. The Department of Defense, which exists to keep the Nation secure and at peace, must always be guided by this principle. In all that we do, we must show respect for the serviceman, the servicewoman, the civilian employee, and family members, recognizing their individual needs, aspirations and capabilities.

The defense of the Nation requires a well-trained volunteer force, military and civilian, regular and reserve. To provide such a force, we must increase the attractiveness of a career in the Department of Defense so that service members and civilian employees will feel the highest pride in themselves, their work, their organization, and their profession.

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